




# Effect of a Patient Navigator Program to Address Barriers to Eye Care at an Academic Ophthalmology Practice

Arman Zarnegar, BS<sup>1</sup> Julie Cassidy, BS<sup>1</sup> Andre Stone, BS<sup>1</sup> Dana McGinnis-Thomas, MHA<sup>1</sup>  
 Lauren M. Wasser, MD<sup>1,2</sup> José-Alain Sahel, MD<sup>1</sup> Andrew M. Williams, MD<sup>1</sup> 

<sup>1</sup>Department of Ophthalmology, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania

<sup>2</sup>Department of Ophthalmology, Shaare Zedek Medical Center, Jerusalem, Israel

**Address for correspondence** Andrew M. Williams, MD, UPMC Vision Institute, 1622 Locust Street, Pittsburgh, PA 15219 (e-mail: williamsam14@upmc.edu).

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## Abstract

**Purpose** The aim of this study was to determine whether a patient navigator program can address patient-reported barriers to eye care and to understand patient perceptions of a patient navigator program in ophthalmology.

**Design** This is a retrospective cohort study and cross-sectional patient survey.

**Subjects and Methods** A cohort of patients was recruited from a single academic ophthalmology department in the Mid-Atlantic region. Patients included in the study had received referral to the patient navigator program in the first quarter of 2022. Our patient navigator program provided patients with resources to address barriers to care such as transportation and financial assistance. Outcomes of the study included indications for referral, case resolution rate, and patient satisfaction.

**Results** In total, 130 referrals for 125 adult patients were included. The mean  $\pm$  standard deviation age was  $59 \pm 17$  years, 54 (44%) were male, 77 were white (62%), and 17 patients (14%) were uninsured. Common reasons for referral were transportation (52, 40%), insurance (34, 26%), and financial assistance (18, 14%). Among the 130 cases referred, 127 (98%) received an intervention from the patient navigator, who was able to resolve the referring issue in 90% of cases (117/130). Among 113 patients contacted for a follow-up telephone survey, 56 (50%) responded. Patients rated the program highly at a mean Likert rating of 4.87 out of 5. Moreover, 72% (31/43) of respondents stated their interactions with the patient navigator assisted them with taking care of their eyes.

**Conclusions** A patient navigator program can address barriers to eye care by connecting patients with community resources.

## Keywords

- ▶ barriers to care
- ▶ access to care
- ▶ patient navigator
- ▶ outcomes research
- ▶ social determinants of health

Patients with chronic eye disease face barriers to routine medical care, including transportation, health insurance, and medical costs.<sup>1–5</sup> These barriers and other social determinants of health are associated with less eye care utilization

and higher rates of visual impairment.<sup>6</sup> Fortunately, many barriers to routine care can be addressed by a patient navigator who acts as a liaison between patients in need and community resources to facilitate care for chronic

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diseases.<sup>7</sup> Patient navigators engage with patients individually to address specific needs, including transportation, communication, costs, and emotional barriers to health care. Moreover, patient navigator programs can lead to improved health outcomes. For example, patient navigator programs have led to reduced readmission rates in heart failure<sup>8</sup> and improved postpartum care in urban settings.<sup>9</sup> In ophthalmology, patient navigation has helped to facilitate follow up after glaucoma screening,<sup>10</sup> and glaucoma patients have benefited from medical social workers to address barriers to care and emotional distress.<sup>11,12</sup>

In light of the evidence that a patient navigator can address barriers to care for chronic conditions, our academic ophthalmology department recently established a patient navigation program to address barriers to eye care. Our patient navigator accepts referrals from across the department, including all satellite locations, to assist patients directly with identified needs. The purpose of this study is to examine the outcomes of our patient navigator program by assessing reasons for referral, case resolution rate, and patient feedback on the program.

## Methods

This retrospective study was approved by the University of Pittsburgh Institutional Review Board, adhered to the tenets of the Declaration of Helsinki, and complied with the Health Insurance Portability and Accountability Act of 1996. Informed consent was waived for this review.

### Patient Navigator Program

Our patient navigator program was established in 2021 in response to a growing recognition that the social needs faced by our patients were barriers to needed ophthalmic care. Funded by our ophthalmology department with foundation support, the program recruited a patient navigator with expertise connecting local resources to patients in health care settings. Clinical faculty and staff were made aware of the program at department-wide meetings and through email communications. Clinical staff were informed about identifying barriers to care, such as transportation or financial needs, that may impede a patient's recommended treatment plan. In addition to needs recognition by our staff, the department also implemented our medical center's standard questionnaire on social determinants of health, which places positive screening results for issues such as housing, transportation, food insecurity, and financial needs directly into the electronic health record (EHR) for review by the treating clinicians.

Once a need is identified, patients are offered a consultation with our patient navigator to discuss possible resources. No specific criteria are required for consultation with our patient navigator, and patients are not billed for patient navigator services. Referrals are made through a forwarded encounter in the EHR or by secure email to the patient navigator, who would then either call the patient or meet with them directly in the clinic. Consultation with the patient navigator would then lead to individualized recommendations for resources. Patients would follow up with the

patient navigator by phone or at future ophthalmology encounters to assist with form completion and submission if desired.

### Data Collection and Statistical Analysis

We conducted a retrospective chart review of patients who were referred to our department's patient navigator program from January 1, 2022, through March 30, 2022. All adult patients were included, and there were no exclusion criteria. We examined referral source, indication for referral, and referral outcome by referencing patient navigator documentation. A referral was considered resolved once the patient was successfully connected with the relevant resource. Demographic and clinical data were collected from the EHR. Demographic variables collected included age, gender, race, ethnicity, and insurance status. Clinical data included best-corrected visual acuity (BCVA), ophthalmic and medical comorbidities, and number of ocular medications. Legal blindness was defined as BCVA of 20/200 or worse in the better-seeing eye.

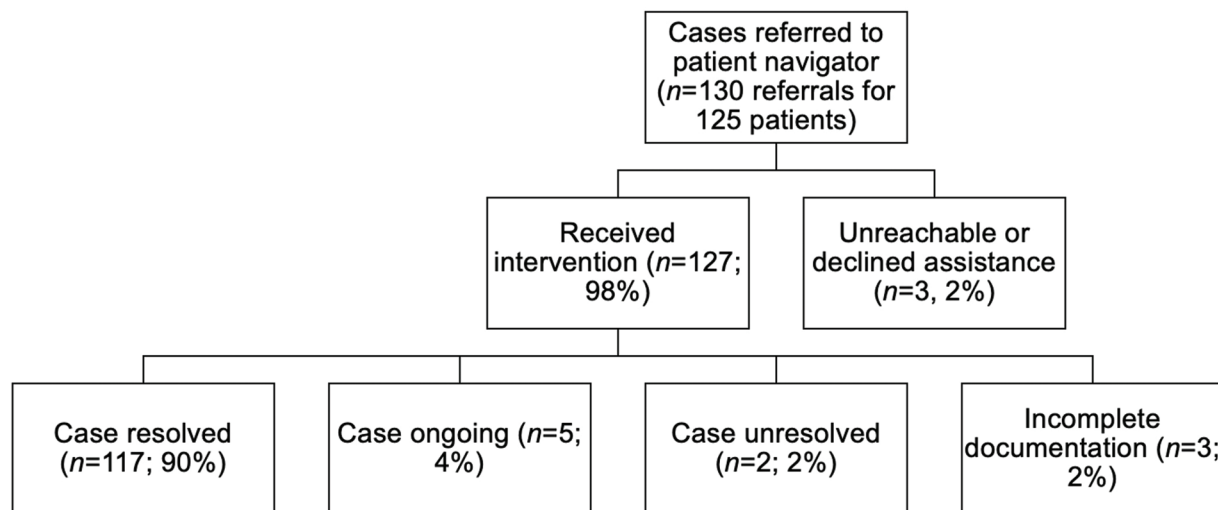
In April and May 2022, a research assistant (J. C.) called English-speaking patients who interacted with the patient navigator over the preceding 3-month study period. Patients were asked to complete a standardized survey to assess the quality of the interaction and to allow for qualitative feedback. Adopted from prior literature,<sup>11</sup> the survey included seven yes-or-no questions and a 5-point Likert scale to rate overall satisfaction with the program. Respondents were also able to provide open-ended feedback. Descriptive statistics were reported as mean  $\pm$  standard deviation.

## Results

Over the 3-month study period, 130 referrals were made to the patient navigator for 125 patients (**Fig. 1**). The average age was  $59 \pm 17$  years, 54 (44%) were male, and two-thirds of patients were white (77, 62%). Seventeen patients (14%) were uninsured, while 103 (82%) had some form of insurance coverage. Of insured patients, there were 53 patients on Medicare, 37 had commercial insurance or a supplemented Medicare plan, 12 had Medicaid, and 1 was seen on charity care (**Table 1**). Common eye diseases included glaucoma (25, 20%) and corneal pathology (21, 17%), such as keratitis and keratoconus. Visual impairment was common, with a mean Snellen BCVA of 20/80 in the right eye and 20/96 in the left, and 13 (10%) patients were legally blind. About a third (46, 38%) were taking chronic ocular medication. Common medical comorbidities included hypertension (42, 34%), hyperlipidemia (21, 17%), and diabetes (19, 15%) (**Table 1**).

Patients were referred to the patient navigator from faculty ophthalmologists (66, 53%) and office staff (52, 42%), which includes surgery schedulers and front desk attendants, while the referral source for 7 (6%) was unspecified. Among the 130 cases referred, 127 (98%) received intervention from the patient navigator, while 3 (2%) were unreachable or declined assistance (**Fig. 1**).

Outcomes of the patient navigator referral included resolution of the issue in 90% of cases (117/130). Other cases remain ongoing (5, 4%), were unresolved (2, 2%), or had



**Fig. 1** Flowchart of patient referrals and intervention outcomes. Patients received referral to the patient navigator for self-identified issues and underwent patient navigator intervention. Case resolution status was documented.

**Table 1** Demographic and clinical characteristics of patients referred to the patient navigator program from January through March 2022 (n = 125)

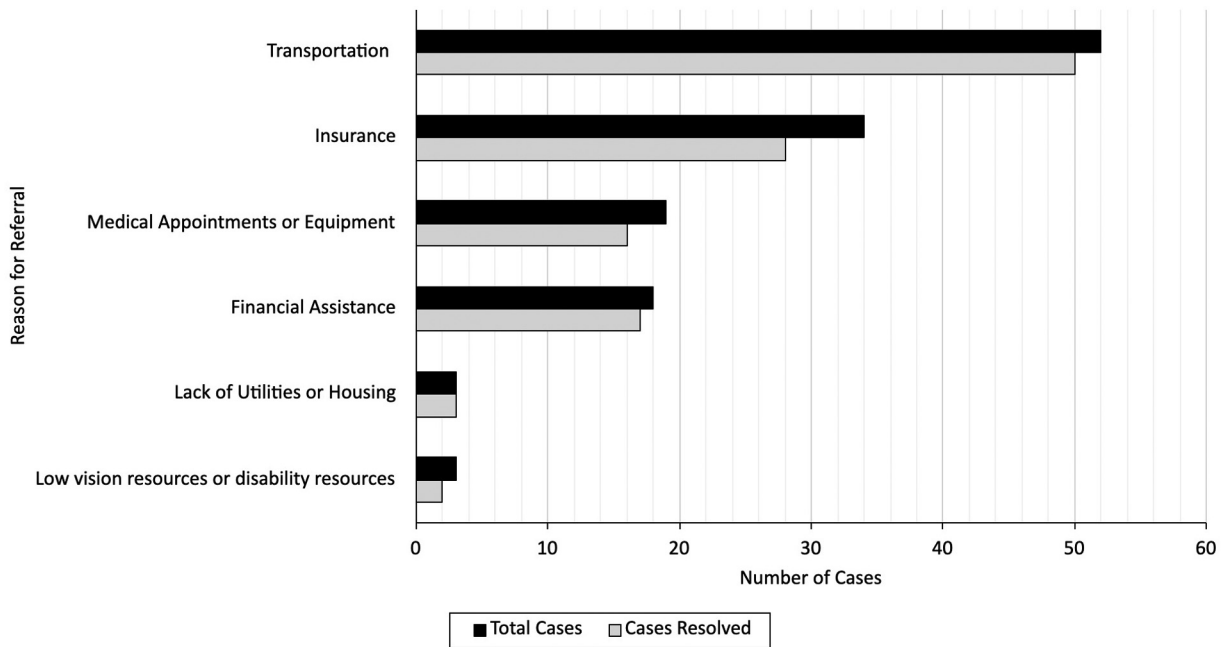
|  |          |
|--|----------|
| Age in years (mean ± SD)   | 59 ± 17  |
| Gender (n, %)  |          |
| Male   | 54 (44)  |
| Female   | 69 (55)  |
| Unspecified  | 1 (1)    |
| Race (n, %)  |          |
| White  | 77 (62)  |
| Black  | 29 (23)  |
| Asian  | 2 (2)    |
| American Indian  | 1 (1)    |
| Unspecified  | 10 (8)   |
| Health insurance status (n, %)   |          |
| Insured  | 103 (82) |
| Commercial or supplemented Medicare  | 37 (30)  |
| Medicare   | 53 (42)  |
| Medicaid   | 12 (10)  |
| Charity care   | 1 (1)    |
| Uninsured  | 17 (14)  |
| Unknown  | 5 (4)    |
| Ophthalmic diagnoses (n, %)  |          |
| Glaucoma (any type)  | 25 (20)  |
| Corneal condition (including keratitis, keratoconus, Fuchs' dystrophy, foreign body) | 21 (17)  |
| Cataract   | 16 (13)  |
| Diabetic retinopathy   | 6 (5)    |

**Table 1** (Continued)

|  |                    |
|--|--------------------|
| Age-related macular degeneration                                     | 6 (5)              |
| Other  | 10 (8)             |
| Best-corrected visual acuity (logMAR, mean ± SD; Snellen equivalent) |                    |
| Right eye  | 0.60 ± 0.74; 20/80 |
| Left eye   | 0.69 ± 0.89; 20/96 |
| Ocular medications (n, %)  |                    |
| None   | 77 (62)            |
| One  | 20 (16)            |
| Two  | 8 (6)              |
| Three or more  | 18 (14)            |
| Medical comorbidities (n, %)   |                    |
| Hypertension   | 42 (34)            |
| Hyperlipidemia   | 21 (17)            |
| Diabetes mellitus  | 18 (15)            |
| Type 1 diabetes  | 2 (2)              |
| Type 2 diabetes  | 16 (13)            |
| Heart-related conditions   | 8 (6)              |
| Stroke   | 7 (6)              |
| Pulmonary disease  | 4 (3)              |

Abbreviations: logMAR, logarithm of the minimum angle of resolution; SD, standard deviation.

incomplete documentation (3, 2%) (►Fig. 1). As delineated in ►Fig. 2, the most common reasons for referral were transportation (52, 40%), insurance (34, 26%), and financial assistance (18, 14%). All three of these common indications for referral had high resolution rates, including 50/52 (96%) for transportation, 28/34 (82%) for insurance enrollment, and 17/18 (94%) for financial assistance (►Fig. 2).



**Fig. 2** Reasons for referral to the patient navigator and case outcomes ( $n = 130$  referrals). Patients were most commonly referred to the patient navigator for transportation concerns, insurance issues, and assistance with medical appointments and equipment. Additional reasons for referral included financial assistance, lack of utilities or housing, and assistance with low vision or disability resources. The status of case resolution is shown.

Patient feedback from the follow-up questionnaire is summarized in **Table 2**. For this quality survey, 113 patients were contacted, of whom 56 responded to the telephone-based questionnaire (50% response rate). Of the 56 respondents, 42 (75%) recalled interacting with the patient navigator,

**Table 2** Quality of care survey ( $n = 56$ )

| Question  | $n$ (%) |
|---|---------|
| Do you recall interacting with our patient navigator?               |         |
| Yes   | 42 (75) |
| No  | 13 (23) |
| I don't know  | 1 (12)  |
| Was the issue for which you were reaching out for support resolved? |         |
| Yes   | 26 (61) |
| No  | 10 (23) |
| I don't know  | 7 (16)  |
| Do you recall the recommendations discussed?                        |         |
| Yes   | 24 (56) |
| No  | 10 (23) |
| N/A   | 9 (21)  |
| Did you follow up with the resources provided?                      |         |
| Yes   | 24 (56) |
| No  | 6 (14)  |
| I don't know  | 2 (5)   |
| N/A   | 11 (26) |

(Continued)

**Table 2** (Continued)

| Question  | $n$ (%)           |
|---|-------------------|
| Did this interaction support you in seeing your eye doctor?                   |                   |
| Yes   | 30 (70)           |
| No  | 9 (21)            |
| I don't know  | 4 (9)             |
| Did this interaction support you in taking care of your eyes?                 |                   |
| Yes   | 31 (72)           |
| No  | 10 (2)            |
| I don't know  | 2 (5)             |
| Would you like further contact with a patient navigator in the future?        |                   |
| Yes   | 32 (74)           |
| No  | 8 (19)            |
| I don't know  | 3 (7)             |
| How was your interaction with our patient navigator rated on a 5-point scale? | 4.87 ( $n = 39$ ) |

Abbreviation: N/A, not applicable.

with 1 additional respondent uncertain about remembering the interaction. Of these 43 respondents, 26 (61%) reported that the issue for which they sought support was resolved. Moreover, almost three-quarters reported that interaction with the patient navigator supported their ability to see their eye doctor (30/43, 70%) and to take care of their eyes (31/43, 72%), and most respondents desired further contact with a patient navigator in the future (32/43, 74%). On a 5-point scale, the mean rating from 39 respondents was 4.87. When

asked for open-ended feedback on the patient navigator program, participants frequently expressed a high degree of satisfaction with the support received, and several reported interest in further access to patient navigators.

## Discussion

We report early outcomes from our novel patient navigator program that seeks to address barriers to eye care in an academic ophthalmology practice. In our retrospective review, we identified 130 referrals to our patient navigator from physicians and office staff in the first quarter of 2022, most commonly to arrange for transportation, to obtain health insurance, or to apply for financial assistance. By leveraging community resources and engaging directly with patients about their needs, our program successfully resolved 90% of referred cases. In a quality survey, patients who engaged with the program rated it highly and reported that their interactions with our patient navigator helped them to care for their eyes.

Our patient navigator receives referrals by phone call or through the EHR from office staff or faculty ophthalmologists. Most referrals are addressed on the same day they are received, and our patient navigator is often able to meet referred patients in-person during their visit at the eye clinic. Meeting face-to-face facilitates assistance with form completion, such as insurance or financial assistance, and establishes the patient–patient navigator relationship. Our patient navigator also provides cases with a direct phone number, and patient-initiated follow-up with our patient navigator is common. Our patient navigator also interfaces directly with the ophthalmologists in our department and can effectively request letters of medical necessity or signed forms from the patients' physicians. After a referral is made, it is not uncommon for the patient navigator to uncover other barriers to care and social needs, such as disability benefits and utility assistance.

Our patient navigator works closely with dozens of community-based programs that address barriers to care. For transportation needs, patients can be set up with county-level programs, such as ACCESS,<sup>13</sup> and state-level programs, such as the Pennsylvania Medical Assistance Transportation Program.<sup>14</sup> Our patient navigator assists patients with applications for these programs and helps to provide the necessary documentation to qualify for them. For financial needs, she guides patients through our medical center's financial assistance programs and state-level aid programs. Our patient navigator also connects patients with organizations dedicated to providing blind and low vision resources. Other resources help with a range of needs. For instance, United Way's Open Your Heart to a Senior program pairs elderly patients with a volunteer who can assist with activities of daily living or serve as a companion to stay with a patient during a same-day surgical procedure. In other examples, the Lions Club has covered the cost of replacing broken glasses, and local Boy Scouts assisted with installing an air conditioner in the home of a blind patient. Our patient navigator allows access to these varied local programs for our patients who may otherwise not be aware of these resources.

Patient satisfaction with our patient navigator program was high, at 4.87 on a 5-point scale. About three-quarters felt that the program assisted them in attending their eye care visits and caring for their eyes. Our program had similar patient feedback as the one reported by Fudenberg et al,<sup>11</sup> which incorporated a medical social worker in a glaucoma service to address barriers to care. In this program, a quality survey found an average rating of 4.75, and 70.6% of patients reported that the interaction supported them in seeing their eye doctor.<sup>11</sup> Similarly high levels of patient satisfaction have been reported in patient navigation programs in oncology and gastroenterology.<sup>15,16</sup> We demonstrate that strong patient feedback supports implementation of a patient navigation program at an academic ophthalmology department to address barriers to care.

Patients with visual impairment may especially benefit from a patient navigation program. Visual impairment and blindness are associated with increased dependence for activities of daily living and reduced emotional well-being.<sup>17</sup> In our cohort of patients referred to our patient navigator, the average BCVA was relatively poor at 20/80 in the right eye and 20/96 in left eye, and 10% of referred patients were legally blind. Patients who face barriers to care are at greater risk of visual impairment and reduced eye care utilization.<sup>6</sup> While resources are available to address barriers to routine care for vulnerable groups, patient navigation can facilitate access to these resources from the eye clinic setting and promote greater access to care.

Patient navigator programs can also address the social determinants of health that underlie eye care disparities. Social determinants of health encompass social needs such as housing, transportation, and insurance coverage, and these social factors are directly associated with vision outcomes and access to eye care.<sup>6</sup> We previously outlined a framework for addressing social determinants of vision health based on guidelines from the National Academies of Sciences, Engineering, and Medicine.<sup>6</sup> Our framework includes promoting awareness of social needs through screening questionnaires and providing assistance for identified barriers to care using community resources and patient navigation. The present study demonstrates that implementation of a patient navigator program can address barriers to vision care.

Our study found a disparity in the rate of case resolution between clinical documentation and patient feedback in the survey. Specifically, clinical notes documented 90% of referred cases as resolved (117/130), while the subset of patients surveyed averaged a resolution rate of 60% (26/43). This discrepancy could be due to selection bias among the patients who completed the survey. However, perhaps more likely, it is possible that many of these barriers to care are ongoing, and our resolution of a specific referral may not fulfill the need for other contexts, such as transportation to other appointments. Nonetheless, the patient navigator continues to work with patients to find a resource that best resolves their needs. Barriers to care are rarely solved with a one-time intervention, and our patient navigator program provides longitudinal follow-up and assistance for referred patients.

Our study has several limitations. First, the retrospective nature of this study relies on data from the EHR and our patient navigator's clinical notes, which may be incomplete. Second, our cross-sectional survey results may not be representative of all patients referred to our program, as we had a modest 50% response rate on the telephone-based questionnaire. Furthermore, recall bias may affect patients' responses as they were asked to reflect on their interactions with the patient navigator. Third, our study covers a 3-month period, and it is unknown how referral patterns and case volume will change as the program continues. Finally, a cost analysis of long-term outcomes would be needed to examine the sustainability of a patient navigator program from the perspective of the payor.

In conclusion, we describe the effects of incorporating a patient navigator program in an academic ophthalmology department to help address barriers to eye care. Future work should evaluate the scalability and cost-effectiveness of patient navigation in the eye care setting.

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#### Conflict of Interest

None declared.

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